

# Developing a STEP Infrastructure: Identifying Standard Services

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# Background:

## The Use of STEP at JPL

- STEP usage implementations have started at the “grass roots” level
- STEP at JPL is similar to early TCP/IP ARPANET networks i.e. standards-based but discontinuous; people intensive and “not yet” officially supported
- Awareness of STEP is growing and there is a recognized need in some areas for infrastructure support
- A Business Case for STEP at JPL needs to be developed

# Long-term Vision

To develop a STEP Infrastructure of Services supporting end-to-end, interdisciplinary data integration and data reuse

- Tool Services
- Translation Services
- Validation Services
- Visualization Services
- Part Library Services
- Data Repository Services
- Education/Training Services
- Data Modeling Services
- Directory Services

Business Cases for each service would create economic models for each service

# Tool Services

- Tools need to be available to output standard, neutral file formats
- need to interface to translation and validation services
- need to retrieve from and deposit in a “standard” Repository Service

# Translation Services

- Users need transparent, easy to use translation services
  - Used within a tool
  - Stand alone

# Validation Services

- Need to be sure model's produced are good and that they can be read, integrated and/or reused by others

# Visualization Services

- Models must be viewable by a wide, diverse audience

# Part Library Services

- Standard parts used in design must be available for use in a broad range of tools
  - The part should be described in a standard way (meta data)
  - The part should be accessed in a standard way (protocol)
  - The part should be represented in a standard way (format)
  - Libraries should link to each other
- PLIB is STEP part library standard (ISO 13584)
- Part 21 is the STEP format standard (ISO 10303)

## **Part Library Products that support STEP formats :**

- PTC InPart



# Data Repository Services

- Models and other product information must be made generally available to a wide audience through standard mechanisms
  - for intra-domain reuse
  - for inter-domain integration
- STEP SDAI (Standard Data Access Interface) and OMG PDM Schema are harmonized PDM specifications that repositories can build interfaces to

## **Products that claim to support STEP repository Standards:**

- |                   |                             |
|-------------------|-----------------------------|
| • PTC WindChill   | • STEP Tool's ST-Repository |
| • LKSoft's J-SDAI | • Espri's Baghera           |

# Data Modeling Services

- Data modeling tools must be available that allow product information models to be prototyped, extended and enhanced
- Products: STEP Tools Inc. ST-Developer

# Education & Training Services

- A range of information and training services need to be available for producers and consumers of product data
  - on-line documentation
  - access to “official” ISO-STEP standards and publications
  - STEP CBT program
  - schedules and registration of classroom training

# Directory Services

- **STEP schemas that support Translation and Validation Services need to reside in and be accessed from an “authoritative” location**
  - Must be on-line and available via a standard API (linkable)
  - Must be available for ad hoc user queries (person)
  - Must be available for system queries (machine)
  - Should be able to link in a hierarchy i.e. a library of libraries

Note: STEP schemas are similar to SGML DTDs i.e. roadmaps to a data structure